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DEPARTMENT OF LABOR & ECONOMIC GROWTH

DIRECTOR'S OFFICE

OCCUPATIONAL HEALTH STANDARDS

Filed with the Secretary of State on June 2, 1995 (as amended February 13, 1998)(as amended April 5, 1999)
(**as amended September 20, 2000**)

This rule takes effect 7 days after filing with the Secretary of State

(By authority conferred on the director of the department of consumer and industry services by section 24 of Act No. 154 of the Public Acts of 1974, as amended, and Executive Reorganization Orders Nos. 1996-1 and 1996-2, being §§408.1024, 330.3101, and 445.2001 of the Michigan Compiled Laws)

R 325.60007 of the Michigan Administrative Code is amended as follows:

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PART 433. PERSONAL PROTECTIVE EQUIPMENT

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GENERAL PROVISIONS

R 325.60001. Scope.

Rule 1. (1) These rules apply to personal protective equipment for eye, face, hand, and respiratory protection, except that R 325.60005 and R 325.60006 do not apply to respiratory protection. Safety standards relating to eye and face protection, head protection, foot protection, and electrical protective equipment are found in R 408.13301 et seq. of the Michigan Administrative Code. Rules applying to personal protective equipment for hearing conservation are found in R 325.60121 et seq. of the Michigan Administrative Code.

(2) These rules replace occupational health rule 3501.

R 325.60002. Application.

Rule 2. Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition if necessary because of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation, or physical contact.

R 325.60003. Employee-owned equipment.

Rule 3. Where employees provide their own protective equipment, the employer shall be responsible for ensuring the adequacy of the equipment, including proper maintenance, and for the sanitation of the equipment.

R 325.60004. Design.

Rule 4. All personal protective equipment shall be designed and constructed to be safe for the work to be performed.

R 325.60005. Hazard assessment and equipment selection.

Rule 5. (1) An employer shall assess the workplace to determine if hazards are present, or are likely to be present, that necessitate the use of personal protective equipment. If hazards are present, or are likely to be present, and if the employer cannot eliminate the hazards by feasible engineering controls, then the employer shall do all of the following:

(a) Select, and have each affected employee use, the types of personal protective equipment that will protect the affected employee from the hazards identified in the hazard assessment.
(b) Communicate selection decisions to each affected employee.
(c) Select personal protective equipment that properly fits each affected employee.

(2) An employer shall verify, through a written certification that is identified as a certification of hazard assessment, that the required workplace hazard assessment has been performed. The certification shall identify all of the following:

(a) The workplace evaluated.

(b) The person certifying that the evaluation has been performed.
(c) The date of the hazard assessment.

(3) An employer shall not permit defective or damaged personal protective equipment to be used.

R 325.60006. Training.

Rule 6. (1) An employer shall train each employee who is required by these rules to use personal protective equipment. The training hall include all of the following:

(a) When and why personal protective equipment is necessary.
(b) What personal protective equipment is necessary.
(c) How to properly don, doff, adjust, and wear the personal protective equipment.
(d) The limitations of the personal protective equipment.
(e) The proper care, maintenance, useful life, and disposal of the personal protective equipment.

(2) Each affected employee shall demonstrate an understanding of the training specified in subrule (1) of this rule and the ability to se the equipment properly before being allowed to perform work requiring the use of personal protective equipment.

(3) If the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by subrule (2) of this rule, the employer shall retrain the employee. The occurrence of any of the following circumstances requires retraining:

(a) Changes in the workplace render previous training obsolete.
(b) Changes in the types of personal protective equipment to be used render previous training obsolete.
(c) Inadequacies in an affected employee's knowledge or use of assigned personal protective equipment indicate that the employee has not retained the requisite understanding or skill.

(4) An employer shall verify that each affected employee has received and understood the required training through a written certification that contains all of the following information:

(a) The name of each employee trained.
(b) The date of training.
(c) The subject of the certification.

R 325.60007. Applicability of requirements for hazard assessments and training.

Rule 7. R 325.60005 and R 325.60006 apply only to face, eye, and hand protection. R 325.60005 and R 325.60006 do not apply to O.H. rule 325.60051 et. seq., Part 451. respiratory protection.

R 325.60008. Face and eye protection generally.

Rule 8. (1) An employer shall ensure that each affected employee uses appropriate eye or face protection when exposed to eye or face hazards from any of the following:

(a) Flying particles.
(b) Molten metal.
(c) Liquid chemicals.
(d) Corrosive materials.
(e) Air contaminants.
(f) Radiation.

Table 1 of this rule, and table 1, face and eye protector selection chart of R 408.13312, shall be used to select the proper eye and face protection.

(2) An employer shall ensure that each affected employee uses eye protection that provides side protection when there is a hazard from flying objects. Detachable side protectors, such as clip-on or slide-on side shields, that are in compliance with the applicable requirements of this rule are acceptable.

(3) An employer shall ensure that each affected employee who wears prescription lenses while engaged in operations that involve eye hazards wears eye protection that incorporates the prescription in its design or wears eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.

(4) An employer shall ensure that eye and face personal protective equipment is distinctly marked to facilitate identification of the manufacturer.

(5) An employer shall ensure that each affected employee uses equipment that has filter lenses which have a shade number appropriate for the work being performed for protection from injurious light radiation. Table 1 is a listing of appropriate shade numbers for various operations.

(6) Table 1 reads as follows:

Table 1

Filter Lenses for Protection Against Radiant Energy

Operations	Plate Thickness (Inches)	Plate Thickness (mm)	Minimum* Protective Shade
Gas Welding:			
Light	Under 1/8	Under 3.2	4
Medium	1/8 to 1/2	3.2 to 12.7	5
Heavy	Over 1/2	Over 12.7	6
Oxygen Cutting			
Light	Under 1	Under 25	3
Medium	1 to 6	25 to 150	4
Heavy	Over 6	Over 150	5

Table 1 (continued)

Filter Lenses for Protection Against Radiant Energy

Operations	Electrode Size 1/32 in.	Arc Current	Minimum* Protective Shade
Shield metal Arc welding	Less than 3 3 to 5 more than 5 to 8 more than 8	Less than 60 60 to 160 161 to 250 251 to 550	7 8 10 11
Gas metal arc welding and flux cored arc welding		Less than 60 60 to 160 161 to 250 251 to 500	7 10 10 10
Gas tungsten arc welding		Less than 50 50 to 150 151 to 500	8 8 10
Air carbon Arc cutting	(Light) (Heavy)	Less than 500 500 to 1000	10 11
Plasma arc welding		Less than 20 20 to 100 101 to 400 401 to 800	6 8 10 11
Plasma arc cutting	(Light)** (Medium)** (Heavy)**	Less than 300 300 to 400 401 to 800	8 9 10
Torch brazing Torch soldering Carbon arc welding			3 2 14

* As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade that gives a sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.

** These values apply where the actual arc is clearly seen. Experience has shown that light filters may be used when the arc is hidden by the workpiece.

R 325.60009. Face and eye protection; adoption of standards by reference.

Rule 9. (1) Protective eye and face devices purchased after July 5, 1994, shall be in compliance with American national standards institute standard Z87.1-1989, entitled "American National Standard Practice for Occupational and Educational Eye and Face protection," or shall be demonstrated by the employer to be equally effective. The standard is adopted by reference in these rules and is available from the American National Standards Institute, 11 West 42nd Street, New York, New York 10036, or from the Michigan Department of Consumer and Industry Services, MIOSHA Standards Division, P.O. Box 30643, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of $18.00.

(2) Eye and face protective devices purchased before July 5, 1994, shall be in compliance with American national standards institute standard Z87.1-1968, entitled "USA Standard for Occupational and Educational Eye and Face Protection," or shall be demonstrated by the employer to be equally effective. The standard is adopted by reference in these rules and is available from the American National Standards Institute, 11 West 42nd Street, New York, New York 10036, or from the Michigan Department of Consumer and Industry Services, MIOSHA Standards Division, P.O. Box 30643, Lansing, Michigan 48909, at a cost as of the time of adoption of these rules of $18.00.

R 325.60010. Hand protection generally.

Rule 10. An employer shall select and require employees to use, appropriate hand protection when employees' hands are exposed to hazards, such as any of the following:

(a) Skin absorption of harmful substances.
(b) Severe cuts or lacerations.
(c) Severe abrasions.
(d) Punctures.
(e) Chemical burns.
(f) Irritating materials.
(g) Thermal burns.
(h) Harmful temperature extremes.

R 325.60011. Hand protection; selection.

Rule 11. An employer shall base the selection of appropriate hand protection on an evaluation of the performance characteristics of the hand protection relative to all of the following:

(a) The task to be performed.
(b) Conditions present.
(c) Duration of use.
(d) The hazards and potential hazards identified.

R 325.60012. Appendices.

Rule 12. Appendices A and B to these rules are informational only and are not intended to create any additional obligations or requirements not otherwise imposed or to detract from any established obligations or requirements. They are identical to appendices A and B to 29 C.F.R. §§1910.132, 1910.133, and 1910.138, from which these rules were derived.

R 325.60013. Availability of rules and appendices; permission to copy.

Rule 13. (1) Copies of these rules and related appendices are available at no cost from the Michigan Department of Consumer and Industry Services, MIOSHA Standards Division, P.O. Box 30643, Lansing, Michigan 48909.

(2) Permission to copy any of these documents in full is granted by the director of the department of consumer and industry services.

APPENDICES TO MIOSHA STANDARD FOR PERSONAL PROTECTIVE EQUIPMENT

(R 325.60001 - R 325.60013)

APPENDIX A

References for further information (non-mandatory)

The documents in Appendix A provide information which may be helpful in understanding and implementing the standards in Subpart I (29 CFR§§1910.132, 1910.133 and 1910.138).

1. Bureau of Labor Statistics (BLS). "Accidents Involving Eye Injuries." report 597, Washington D.C.: BLS, 1980.
2. Bureau of Labor Statistics (BLS)." "Accidents Involving Face Injuries." Report 604, Washington, D.C.: BLS, 1980.
3. Bureau of Labor Statistics (BLS). "Accidents Involving Head Injuries." Report 605, Washington, D.C.: BLS, 1980.
4. Bureau of Labor Statistics (BLS). "Accidents Involving Foot Injuries." Report 626, Washington, D.C.: BLS, 1981.
5. National Safety Council. "Accident Facts", Annual edition, Chicago, IL: 1981.
6. Bureau of Labor Statistics (BLS). "Occupational Injuries and Illnesses in the United States by Industry," Annual edition, Washington D.C.: BLS.
7. National Society to Prevent Blindness. "A Guide for Controlling Eye Injuries in Industry," Chicago, IL: 1982.

[59 FR 16362, April 6, 1994]

APPENDIX B
NON-MANDATORY COMPLIANCE GUIDELINES FOR HAZARD ASSESSMENT AND PERSONAL PROTECTIVE EQUIPMENT SELECTION.

This Appendix is intended to provide compliance assistance for employers and employees in implementing requirements for a hazard assessment and the selection of personal protective equipment.

1. Controlling hazards. PPE devices alone should not be relied on to provide protection against hazards, but should be used in conjunction with guards, engineering controls, and sound manufacturing practices.

2. Assessment and selection. It is necessary to consider certain general guidelines for assessing the foot, head, eye and face, and hand hazard situations that exist in an occupational or educational operation or process, and to match the protective devices to the particular hazard. It should be the responsibility of the safety officer to exercise common sense and appropriate expertise to accomplish these tasks.

3. Assessment guidelines. In order to assess the need for PPE the following steps should be taken:

a. Survey. Conduct a walk-through survey of the areas in question. The purpose of the survey is to identify sources of hazards to workers and co-workers. Consideration should be given to the basic hazard categories:

(a) Impact
(b) Penetration
(c) Compression (roll-over)
(d) Chemical
(e) Heat
(f) Harmful dust
(g) Light (optical) radiation

b. Sources. During the walk-through survey the safety officer should observe: (a) sources of motion; i.e., machinery or processes where any movement of tools, machine elements or particles could exist, or movement of personnel that could result in collision with stationary objects; (b) sources of high temperatures that could result in burns, eye injury or ignition of protective equipment, etc.; (c)types of chemical exposures; (d) sources of harmful dust; (e) sources of light radiation, i.e., welding, brazing, cutting, furnaces, heat treating, high intensity lights, etc.; (f) sources of falling objects or potential for dropping objects; (g) sources of sharp objects which might pierce the feet or cut the hands; (h) sources of rolling or pinching objects which could brush the feet; (I)layout of workplace and location of co-workers; and (j) any electrical hazards. In addition, injury/accident data should be reviewed to help identify problem areas.

c. Organize data. Following the walk-through survey, it is necessary to organize the data and information for use in the assessment of hazards. The objective is to prepare for an analysis of the hazards in the environment to enable proper selection of protective equipment.

d. Analyze data. Having gathered and organized data on a workplace, an estimate of the potential for injuries should be made. Each of the basic hazards (paragraph 3.a.) should be reviewed and a determination made as to the type, level of risk, and seriousness of the potential injury from each of the hazards found in the area. The possibility of exposure to several hazards simultaneously should be considered.

4. Selection guidelines. After completion of the procedures in paragraph 3, the general procedure for selection of protective equipment is to: a) become familiar with the potential hazards and the type of protective equipment that is available, and what it can do; i.e., splash protection, impact protection, etc.; b) compare the hazards associated with the environment; i.e., impact velocities, masses, projectile shape, radiation intensities, with the capabilities of the available protective equipment; c) select the protective equipment which ensures a level of protection greater than the minimum required to protect employees from the hazards; and d) fit the user with the protective device and give instructions on care and use of the PPE. It is very important that end users be made aware of all warning labels for and limitations of their PPE.

5. Fitting the device. Careful consideration must be given to comfort and fit. PPE that fits poorly will not afford the necessary protection. Continued wearing of the device is more likely if it fits the wearer comfortably. Protective devices are generally available in a variety of sizes. Care should be taken to ensure that the right size is selected.

6. Devices with adjustable features. Adjustments should be made on a individual basis for a comfortable fit that will maintain the protective device in the proper position. Particular care should be taken in fitting devices for eye protection against dust and chemical splash to ensure that the devices are sealed to the face. In addition, proper fitting of helmets is important to ensure that it will not fall off during work operations. In some cases a chin strap may be necessary to keep the helmet on an employee's head. (Chin straps should break at a reasonable low force, however, so as to prevent a strangulation hazard). Where manufacturer's instructions are available, they should be followed carefully.

7. Reassessment of hazards. It is the responsibility of the safety officer to reassess the workplace hazard situation as necessary, by identifying and evaluating new equipment and processes, reviewing accident records, and reevaluating the suitability of previously selected PPE.

8. Selection chart guidelines for eye and face protection. Some occupations (not a complete list) for which eye protection should be routinely considered are: carpenters, electricians, machinists, mechanics and repairers, millwrights, plumbers and pipe fitters, sheet metal workers and tinsmiths, assemblers, sanders, grinding machine operators, lathe and milling machine operators, sawyers, welders, laborers, chemical process operators and handlers, and timber cutting and logging workers. The following chart provides general guidance for the proper selection of eye and face protection to protect against hazards associated with the listed hazard "source" operations.

Eye and Face Protection Selection Chart

Source	Assessment of Hazard	Protection
IMPACT – Chipping, machining, masonry work, woodworking, sawing, drilling, chiseling, powered fastening, riveting, and sanding.	Flying fragments, objects, large chips, particles, sand, dirt, etc.	Spectacles with side protection, goggles, face shields, See notes (1), (3), (5), (6), (10). For severe exposure, use face shield.
HEAT – Furnace operations, pouring, casting, hot dipping, and welding.	Hot sparks	Faceshields, goggles, spectacles with side protection. For severe exposure use faceshield. See notes (1), (2), (3).
	Splash from molten metals.	Faceshields worn over goggles. See notes (1), (2), (3).
	High temperature exposure.	Screen face shields, reflective face shields. See notes (1), (2), (3).
CHEMICALS – Acid and chemical handling, degreasing plating.	Splash.	Goggles, eyecup and cover types. For severe exposure, use face shield. See notes (3), (11).
	Irritating mists.	Special-purpose goggles.
DUST – Woodworking, buffing, general dusty conditions.	Nuisance dust.	Goggles, eyecup and cover types. See note (8).
LIGHT and/or RADIATION Welding: Electrical Arc.	Optical radiation.	Welding helmets or welding shields. Typical shades: 10-14. See notes (9), (12).
Welding: Gas	Optical radiation.	Welding goggles or welding face shield. Typical shades: gas welding 4-8, cutting 3-6, brazing 3-4. See note (9).
Cutting, Torch brazing, torch	Optical radiation.	Spectacles or welding face-shield. Typical shades 1.5-3. See notes (3), (9).
Glare	Poor vision.	Spectacles with shaded or special purpose lenses, as suitable. See Notes (9), (10).

NOTES to Eye and Face Protection Selection Chart:

(1) Care should be taken to recognize the possibility of multiple and simultaneous exposure to a variety of hazards. Adequateprotection against the highest level of each of the hazards should be provided. Protective devices do not provide unlimited
protection.

(2) Operations involving heat may also involve light radiation. As required by the standard, protection from both hazards must be provided.

(3) Faceshields should only be worn over primary eye protection (spectacles or goggles).

(4) As required by the standard, filter lenses must meet the requirements for shade designations in 1910.133(a)(5) or R325.60008(6). Tinted and shaded lenses are not filter lenses unless they are marked or identified as such.

(5) As required by the standard, persons whose vision requires the use of prescription (Rx) lenses or protective devices designed to be worn over regular prescription (Rx) eyewear.

(6) Wearers of contact lenses must also wear appropriate eye and face protection devices in a hazardous environment. It should be recognized that dusty and/or chemical environments may represent an additional hazard to contact lens wearers.

(7) Caution should be exercised in the use of metal frame protective devices in electrical hazard areas.

(8) Atmospheric conditions and the restricted ventilation of the protector can cause lenses to fog. Frequent cleansing may be necessary.

(9) Welding helmets or faceshields should be used only over primary eye protection (spectacles or goggles).

(10) Non-sideshield spectacles are available for frontal protection only, but are not acceptable eye protection for the sources and operations listed for "impact."

(11) Ventilation should be adequate, but well protected from splash entry. Eye and face protection should be designed and used so that it provides both adequate ventilation and protects the wearer from splash entry.

(12) Protection from light radiation is directly related to filter lens density. See note (4). Select the darkest shade that allows task performance.

9. Selection guidelines for head protection. All head protection (helmets) is designed to provide protection from impact and penetration hazards caused by falling objects. Head protection is also available which provides protection from electric shock and burn. When selecting head protection, knowledge of potential electrical hazards is important. Class A helmets, in addition to impact and penetration resistance, provide electrical protection from lowvoltage conductors (they are proof tested to 2,200 volts). Class B helmets, in addition to impact and penetration resistance, provide electrical protection from high-voltage conductors (they are proof tested to 20,000 volts). Class C helmets provide impact and penetration resistance (they are usually made of aluminum which conducts electricity), and should not be used around electrical hazards.

Where falling object hazards are present, helmets must be worn. Some examples include: working below other workers who are using tools and materials which could fall; working around or under conveyor belts which are carrying parts or materials; working below machinery or processes which might cause material or objects to fall; and working on exposed energized conductors.

Some examples of occupations for which head protection should be routinely considered are: carpenters, electricians, linemen, mechanics and repairers, plumbers and pipe fitters, assemblers, packers, wrappers, sawyers, welders, laborers, freight handlers, timber cutting and logging, stock handlers, and warehouse laborers.

10. Selection guidelines for foot protection. Safety shoes and boots which meet the ANSI Z41-1991 standard provide both impact and compression protection. Where necessary, safety shoes can be obtained which provide puncture protection. In some work situations, metatarsal protection should be provided, and in other special situations electrical conductive or insulating safety shoes would be appropriate.

Safety shoes or boots with impact protection would be required for carrying or handling materials such as packages, objects, parts or heavy tools, which could be dropped; and, for other activities where objects might fall onto the feet. Safety shoes or boots with compression protection would be required for work activities involving skid trucks (manual material handling carts) around bulk rolls (such as paper rolls) and around heavy pipes, all of which could potentially roll over an employee's feet. Safety shoes or boots with puncture protection would be required where sharp objects such as nails, wire tacks, screws, large staples, scrap metal etc., could be stepped on by employees causing a foot injury.

Some occupations (not a complete list) for which foot protection should be routinely considered are: shipping and receiving clerks, stock clerks, carpenters, electricians, machinists, mechanics and repairers, plumbers and pipe fitters, structural metal workers, assemblers, drywall installers and lathers, packers, wrappers, craters, punch and stamping press operators, sawyers, welders, laborers, freight handlers, gardeners and grounds- keepers, timber cutting and logging workers, stock handlers and warehouse laborers.

11. Selection guidelines for hand protection. Gloves are often relied upon to prevent cuts, abrasions, burns, and skin contact with chemicals that are capable of causing local or systemic effects following dermal exposure. OSHA is unaware of any gloves that provide protection against all potential hand hazards, and commonly available glove materials provide only limited protection against many chemicals. Therefore, it is important to select the most appropriate glove for a particular application and to determine how long it can be worn, and whether it can be reused.

It is also important to know the performance characteristics of gloves relative to the specific hazard anticipated; e.g., chemical hazards, cut hazards, flame hazards, etc. These performance characteristics should be assessed by using standard test procedures. Before purchasing gloves, the employer should request documentation from the manufacturer that the gloves meet the appropriate test standard(s) for the hazard(s) anticipated. Other factors to be considered for glove selection in general include:

(A) As long as the performance characteristics are acceptable, in certain circumstances, it may be more cost effective to regularly change cheaper gloves than to reuse more expensive types; and,

(B) The work activities of the employee should be studied to determine the degree of dexterity required, the duration, frequency, and degree of exposure of the hazard, and the physical stresses that will be applied.

With respect to selection of gloves for protection against chemical hazards:

(A) The toxic properties of the chemical(s) must be determined; in particular, the ability of the chemical to cause local effects on the skin and/or to pass through the skin and cause systemic effects;

(B) Generally, any "chemical resistant" glove can be used for dry powders;

(C) For mixtures and formulated products (unless specific test data are available), a glove should be selected on the basis of the chemical component with the shortest breakthrough time, since it is possible for solvents to carry active ingredients through polymeric materials; and,

(D) Employees must be able to remove the gloves in such a manner as to prevent skin contamination.

12. Cleaning and maintenance. It is important that all PPE be kept clean and properly maintained. Cleaning is particularly important for eye and face protection where dirty or fogged lenses could impair vision.

For the purposes of compliance with 1910.132(a) and (b) or R325.60002 and R325.0003, PPE should be inspected, cleaned, and maintained at regular intervals so that the PPE provides the requisite protection. It is also important to ensure that contaminated PPE which cannot be decontaminated is disposed of in a manner that protects employees from exposure to hazards.

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